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Science for Industry Dominates Federal R&D Planning

R&D Budget: Clinton Trends

The precise R&D numbers in the Clinton budget matter little, since they'll be whacked around by Congress before the dawn of Fiscal 1994, next October 1.

But for number-munchers, the big figure is $76 billion, a 3 percent increase over the current fiscal year. For basic research, civilian funding would rise by about 3 percent while the Pentagon's support would drop by 1 percent. "Civilian applied research" is the big winner, up 6 percent.

What really matters for glimpsing the future are trends and proportion, since they usually hold up over time. By that measure, the Clinton Administration, true to its campaign pledges and silences, is concentrating its R&D wishes on applied research of apparent value to industry. The skimpy increase for basic research represents a loss to inflation—and even worse than meets the eye, since research costs regularly rise faster than the standard consumer price index.

By category, biomedical research barely grows at all—and actually drops a bit in the NIH budget outside of the politically sensitive and favored areas of AIDS and breast-cancer research. The old pattern of Presidential skimpiness for NIH in anticipation of Congressional generosity has waned in recent years. Whether it will revive is uncertain.

The future is especially murky for the National Science Foundation and the National Institute of Standards and Technology, Clinton favorites cast for big roles in the Administration's industrial-aid programs. But supplementary funds for the pair for this year are included in the Stimulus Package that Republicans have stymied by filibuster—$207 million for NSF and $110 million for NIST. With Clinton now willing to negotiate on the Stimulus, the future of these accounts is uncertain.

NASA gets more money for the long-neglected bread-and-butter field of aeronautics, while the Space Station goes through another last-chance, drastic fiscal reduction. However, survival of that turkey looks increasingly doubtful, especially with its European partners facing hard times.

At the Department of Energy, there's growth in science funds, but most of it goes to the Super Collider, an essential prop for the reelection of Democratic Senator Robert Krueger. Whatever the outcome, the SSC will still face many perils.

At the Department of Agriculture, Cooperative Research, after recent cuts, drops further in the Clinton budget, though a big increase is sought for the competitive grants program, a favorite of policymakers outside the ag system.

John Gibbons, the President's Science Advisor and Director of the White House Office of Science and Technology Policy (OSTP), spoke to the DC Science Writers Association on April 8, following the release that day of President Clinton's budget for fiscal 1994. For the general thrust of Clinton R&D policy, this was the firmest exposition so far. Following are excerpts, transcribed and edited by SGR.

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I think it's important for us to remember that despite all the deficit-cutting activity, we hope that overall R&D activities will continue to wax rather than wane.... Within that R&D budget, there's some shifting that's going on. You don't see it in total dollars, but you can certainly see it if you look inside. The shift in the ratio of defense to civil

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In Brief

NIH, usually the target of raids, has recruited an eminent genome researcher, Francis Collins, of the University of Michigan, to the Bethesda campus, along with half a dozen members of his research team. Collins will head NIH's Center for Human Genome Research as well as a newly established intramural program, largely financed from the discretionary fund of NIH Director Bernadine Healy. In the works: elevation of the Center to full Institute status, with Collins slated as Director.

Set for May 24-25 in Washington, a conference on "Scientific Integrity in the Public Policy Process," arising from concerns that "In recent years, a handful of scientists appear to have made exaggerated claims in the health and environmental areas. Their forecasts of dire calamities have strained public credulity...." Sponsors: the International Institute of George Mason Univ. and The Science & Environmental Policy Project. For information: GMU/SEPP Conference, 4001 N. Fairfax Dr., Suite 450, Arlington, Va. 22203; tel. 703/993-8200; fax 703/993-8215.

The White House Science Office has decreed new fiscal hoops for the Space Station, which is in such desperate straits that it's looking to the Russians for help. Ordered to examine options ranging from $5 billion to $9 billion for the next five years, NASA has been advised that if it goes for the high figure, $2 billion will be sliced out of other NASA programs. A NASA announcement says that cooperation with the Russians will be "accomplished" through the East-West Space Science Center at the University of Maryland.

. . . Aiming for 50-50 Split in Military, Civilian R&D

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sector investments had already begun in the past couple of years. It's continuing in FY '94. We expect it to continue more vigorously in '95. The President is concerned to get that rough mixture of civil versus military back toward its earlier historic levels of about half, 50-50, rather than the levels that we've been recently operating at, 60-40, that is the 60 for the military.

We do want to put a lot of attention on applied research and development, not to steal from the basic [sciences], but to shift resources into applied research and development that is relevant to the commercial-industrial sector. And the way to do that, and make an honest game out of it and not to waste money, is to enter into new kinds of partnerships—joint ventures, consortia, what have you—in which both the public and the private sectors have identified self-interests and also both have money on the table....

You can break out the overall $76 billion [for R&D] down to applied research and development, which is about $58 billion, and $17 billion of that is in civilian applied R&D, which is a substantial increase; it's about 6 percent. We are going to be trying not just to add money but reorient resources. We're looking very hard and working with the Departments of Energy and Defense, in particular, but also with ... others in readjusting the resources within our big national labs so that the work not only helps fulfill mission needs, which in the past has been the almost total rationale, to where it also matches civil-sector needs and opportunities. We're encouraging a streamlining and much increased activity in these so-called joined ventures [with industry] ... CRADAs, the Cooperative Research and Development Agreements.

We are adding a lot of money to the National Institute of Standards and Technology ... [NIST's budget, $384 million in 1993, would rise by $151 million next year], because we feel that the Department of Commerce should, in fact, be a Department of Commerce. And that is, undertake a leadership role in the proliferation and the deals being made in the civil sector in cooperative research with industry. We are committing a substantial amount of resources to the Vice President's favorite, and I think the favorite of many of us, namely, not only increasing the capability of our physical infrastructure in underpinning our economy, but also providing better seed ground for the development of an information infrastructure with which we can have broader and easier and less expensive access to high-speed communications networks, both for the delivery of public services as well as for the delivery of private services and operations....

We are very interested in manufacturing technology for a variety of reasons. One is it's the heart of the ability of manufacturing industry to compete in a very intensely competitive global economy. I've just spent two days in Detroit this week looking at some of the things they've been doing on their [production] lines in terms of introducing not only flexible but agile manufacturing methods. And these are seen not only as ways to improve the bottom line and compete, but also to foreshorten the time it takes to go from a good idea to a good product on line that's being produced—extraordinary methods that derive not only from modern computer techniques but also from some modern management techniques.

We hope to help sustain that process by providing opportunities for the smaller businesses to be able to access some of those same kinds of technologies in their work, similar to what is already available in Japan and Germany, as an example. This not only is important in terms of the competitiveness of the civil sector but it's very important in terms of so-called dual use for America's defense sector.... So, that's going to be a fairly major activity—developing the methods and also making them available to small industry through extension-service techniques.

The basic-research budget is $14 billion. It's about a total 2 percent positive change. That equates to about 3 percent increase in the civil arena of basic research, and a decrease in the defense area accordingly. We'd like to have it more, but we also understand everybody has to take part of this hit, with this impression on all of us that we have to trim our preferences in order to cut our deficit, which otherwise will take us apart.

There's $11 billion for university research, if you add up the numbers from the [National] Science Foundation, the NIH, the Departments of Energy, Defense, and NASA. There is a 13 percent increase in the funding for the US global-change research program. There is a 3 percent increase in funding for all of the NIH work, to about $10.7 billion. And, of course, major funding for breast cancer research and the AIDS research activities. And there's a 7 percent increase in the funding for research and related activities at the NSF. That 7 percent is assuming that we get the $207 million we requested as a supplemental in '93 for the NSF in the so-called Stimulus Package....

We chose to boost NSF, just like the other pieces of the Stimulus Package, to provide not only a near-term stimulus in our economy. In this case it would be graduate students

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. . . Budget Growth for NIH? Wait Until Next Year

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and equipment for labs and the like, based on proposals that had already been screened by peer-group analysis and found to be meritorious, but also that would add to our long-term strength as we go along....

Questions and Answers

Q. *What are the major changes in science and technology policy between this budget and the last one?*

Gibbons. One of the similarities is a strong, balanced support of basic science. I'm very pleased to see that it spans across very different political philosophies.... If I had to say what are the largest differences, it would be to me two things: one is the extent to which the President and the Vice President are deeply engaged and knowledgeable in the process of science and technology, and therefore, their fundamental appreciation for what it can mean for us.... The second part of that is, because of that interest, the accessibility, and the use by which they make of my office, I believe is measurably different from what happened with my predecessor, my friend Al Bromley [Science Advisor to President Bush]. And that makes me feel better. I think Bromley had a harder time, in a sense, working in that environment, and, in fact, sometimes had to penetrate through some of the maze of the White House, whereas I'm drawn in, almost like a magnet ... they're making full use of what capabilities I have, even though we're streamlined. We all took a hit at the White House to start this business [of government-wide staff reduction]. I have a lot fewer people than Alan [Bromley] had, but we felt that we needed to start at home....

Q. *Looking at the new budget, one wonders whether biomedical research may have gotten left out. The NSF gets 18 percent; NIH gets 3 percent. Take out AIDS and breast cancer, and it's actually a cut. Can you explain why biomedical research isn't one of the Administration's priorities?*

Gibbons. I think it probably will be. But I think what we're looking at here is a situation in which the NSF had taken a fairly heavy hit, and needed this near-term boost. It had some pretty lean years in the recent past. NIH has been moving along pretty well. There's no retreat from interest in NIH, especially biomedical and biotechnology at NIH. I think we ought to look to the '95 budget to see how that's going to grow.

Q. *Tony Fauci [head of AIDS research at NIH] a couple of years ago said 10 percent of the NIH budget is about enough. Now you're up to 13 percent. Are the increases for AIDS and breast cancer justified by new research opportunities?*

Gibbons. The question is whether the increases are derivable from first principles or are they in response to political pressures. You have to be careful about the theorem that the more money you put into something, the sooner you will solve the problem. In basic research, it doesn't work that way.... We have to be careful not to assume that just by pouring more money, for instance, into AIDS, that we're going to find a solution more quickly. I think you can hyper-inflate that area of the research market, just like you can hyper-inflate anything with too much investment too quickly. There is a concern about the rate at which an escalation of AIDS research matches both the enormously expanding size of the problem, as OTA said in 1985, and also at the same time the state of knowledge that accompanies it. I know that's going to be a dialog between the Administration and the Congress in the months ahead.

In the case of breast cancer research, it seems to me all you have to do is look at the mortality figures ... compared to other diseases, and the extent to which we're pursuing that widespread problem, which affects now one in every 10 women, and ask yourself whether it doesn't merit, on first principles, more attention and support in terms of field trials and other investigative areas. But, again, the question is how much, how fast takes you beyond a very high-yielding investment and moves you into hyper-inflation, and therefore money wasted. Sudden and rapid rates of change are always fraught with potential error and waste. I have no idea whether the 13 percent [for AIDS] is right....

Q. *How do you feel about the President's Council of Advisors for Science and Technology [PCAST]? Will you have one, do you think they're effective?*

Gibbons. I've had some experience with the government equivalent of visiting committees. And, generally, my experience has been very good.... What I'm trying to do is understand the best of past experience of all these [federal science-advisory boards] ... and then to tell the President what I think about the best of these various experiences and how that can map into this particular Administration. Because, just like my office, an advisory council office is going to be valuable in one way or another, depending on how well it impedance matches with the Oval Office and with the Vice President. I have put that off, quite honestly, because I was so loaded with other immediate needs. But the present PCAST runs till the end of June. I'm seeing Harold Shapiro [President of Princeton University and Vice Chairman of PCAST] next week, and I have been talking with people who have had experience on the Defense Science Board, on the National Science Board, at the Academy, PCAST, and the early incarnations, such as PSAC [President's Science Advisory Committee, a predecessor of PCAST].... to make a recommendation to the President, which I hope to do in the next 45 days.

Q. *Given this Administration's commitment to developing high-tech industries, is there any program that's specifically designed to merge academia and industry, like the NSF science and technology centers? Are they going to be enhanced in terms of support and are other programs being planned?*

Gibbons. I hope so. NIST will be doing a lot of respond-

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. . . Gibbons Cool to Creating Environment Institute

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ing to proposals of joint ventures between industry and co-partners, whether they be national labs or universities. And it's this encouraging and rewarding of consortia, in which the whole is greater than the sum of the parts, that NIST will be encouraging. The same thing will happen with the CRADAs and the national labs and industry.... I would hope also in this process we'll find a greater direct university-industry relationship in a variety of ways....

Q. How do you feel about the idea of creating a National Institute of the Environment?

Gibbons. I think an excuse for not getting work done and not using your resources is to say we ought to reorganize.... I'm less persuaded that we can somehow have an institute for the environment as being a better plan than trying to take the assets and responsibilities that go across at least a half a dozen federal agencies and organize a way to orchestrate their collective resources in what Vice President Gore calls the *gestalt* of the whole being greater than the sum of the parts. And that's what we try to do in things like the Federal Coordinating Council on Science, Engineering, and Technology, where we've done a pretty good job, starting with Bromley. And we're going to continue that, in taking, for instance, the global-change research activities, which cover everyone from the Department of Energy to NOAA [National Oceanic and Atmospheric Administration], in the Department of Commerce, and to the Department of Defense, and even to some of the assets of historical data that line the vaults of the CIA—all the way across the board, and say how do we take this collectively ... and make the best of these collective resources in a kind of orchestrated way. So, I'm persuaded that ought to be given a hard try before we try to reorganize....

Q. Do you think the EPA is too narrow?

Gibbons. I think the EPA has suffered by not having sufficient research capabilities and support. I think less than 5 percent of their budget has been involved in research, and that makes them sort of lean in that regard, compared to their regulatory resources.

Q. Your old office [Office of Technology Assessment] panned the Strategic Defense Initiative. How can the Clinton Administration propose any *funding for SDI?*

Gibbons. What we panned at OTA—I think we showed that there was less there than meets the eye—was space-based intercept. We did not say that ground-based intercept was that unlikely. And what you see now in the present SDI program is that they have basically wiped out the space-based intercept. I think that brilliant pebbles, as it's been called, is relegated to a rather small R&D program, with no attempt to deploy. They've moved toward what they call theater defense, which means battlefield defense or limited-area defense, such as you would get with ground-based or ship-based mechanisms.... We're not talking about trying to defend the continental US.... We did spend a lot of money on some things that didn't turn out too well....

Q. What can you tell us about the slowness of appointments in this Administration?

Gibbons. There's a helluva big backlog at the White House, but the backlog is due to FBI clearance rates, primarily. I heard the other day that something like 45 appointments are hung up. The problem is that the FBI's budget has been squeezed, too. They've had to padlock their training academy, and they'd like the world to know that, and I don't blame them.... The second problem is that we have some very strong people now as agency heads, and they've got their ideas about who they would really like to have. And some people in the White House also have their ideas about who they think ought to be there. And you have to have this play—it always happens, in terms of adjudicating the interests and concerns of the principals. And that's in part the process. But as I understand it, it's mostly at this point the clearance process.

Q. There are reports of American research jobs going abroad. Is this a matter of concern?

Gibbons. It's not a matter of great concern to me. But maybe that's because of my ignorance. But I do know that there are stories ... and I've got limited information that there's some truth to it. If you are, say, Sun Microsystems,and you want to get some work done on some very sophisticated programming, you can go to Russia and hire some extraordinarily fine software experts and mathematicians for about one-tenth of what it would cost you here. The question is should we encourage that or not? And I could give you both sides of the argument, just as though I were back at OTA. So, I think it's a mixed bag, but I don't believe it's a major factor. In fact, what we see is, for instance, Siemens and others relocating a lot of their R&D stuff here in the US because US researchers are less expensive and more productive. And hopefully we can keep it that way.

More Ties with Federal Labs

Industry is responding to Washington's urgings to make use of the wealth of scientific and technical resources in the federal research establishment, according to a survey sponsored by the Industrial Research Institute and the Department of Energy.

The findings, by David Roessner, of the School of Public Policy, Georgia Institute of Technology, were reported last month at an IRI seminar in Washington. Roessner observed that "informal interactions," though difficult to measure, are often the most frequent forms of contacts between federal and industrial personnel. In assessing results, he said, there is a danger of putting too much emphasis on licenses and other tangibles and too little on "access to state-of-the-art knowledge and equipment."

NIH Orders Feder and Stewart Off Misconduct Beat

The National Institutes of Health has decreed an end to the highly-publicized fraud-hunting operations of two maverick staff members, Ned Feder and Walter Stewart, reassigning them to conventional duties on the Bethesda campus.

The pair, well-versed in bureaucratic judo, say they plan to contest the action. They note that their decade-long pursuit of scientific delinquencies was explicitly approved by their NIH superiors and consistently rated "excellent" on their performance charts. They say that notice of their reassignment, dated April 9, came just three weeks after permission to purchase $9500 worth of computer equipment for their increasingly automated studies of misconduct.

The reassignment decision was accompanied by a letter stating that their work "has progressively moved outside the mission" of their homebase at NIH, the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDKD). Citing a tight budget and mandated staff reductions, the Acting Deputy Director of the Institute, L. Earl Laurence, set a May 1 termination date for their two-man shop, the Biophysical Histology Section in the NIDDKD Laboratory of Analytical Chemistry. Feder, who has headed the Section since 1967, was joined there by Stewart in 1974, and the two devoted themselves to research on snails until they embarked on the fraud trail 10 years ago.

The reassignment letter didn't say so, but SGR was told that the NIDDKD management was chilled by the latest Feder-Stewart venture into scholarly delinquency, a controversy over whether Stephen B. Oates, of the University of Massachusetts, committed plagiarism in his 1978 biography of Abraham Lincoln. An affirmative finding by Feder and Stewart, derived from their computerized "plagiarism machine," was reported on March 29 in the *New York Times*, which has periodically chronicled their activities.

Onlookers to the Feder-Stewart phenomenon divide into two camps, neither short on strong feelings: (1) supporters, who feel that "Ned" and "Walt" offended too many barons of the scientific profession with their findings of complacency toward shabby scientific practices; and (2) opponents, outraged that the two remain on the NIH payroll as laboratory researchers while fulltime on self-assigned fraud patrol.

That they had authorization for their activities made it seem all the more outrageous—to the point that Feder and Stewart have long been ostracized by the NIH community. Asked why they officially tolerated Feder and Stewart when they privately despised them, some NIH officials said that, under government rules, the bloody battle that would be required to remove them would be too much to bear.

Others, like James Wyngaarden, when he was head of NIH, said that NIH researchers deserve wide latitude in selecting their interests and that administrators should err on the side of tolerance. Though never shy about wading into other matters at NIH, Director Bernadine Healy displayed no interest in the Feder-Stewart problem, which, by any measure, has evolved into one of the oddest situations in the federal establishment.

In defiance of the procedurally rigid workings of government agencies, Feder and Stewart created an independent base for themselves within NIH. Working alone, they transformed the subject of scientific misconduct from a professional curiosity into a political issue with major news-media appeal. If not for them, the celebrated "Baltimore case"—which led to an official finding of misconduct against a co-author of Nobel laureate David Baltimore—would have withered away out of public view.

Their harping on the theme of official indifference to scientific misconduct caught the attention of the thunderous and powerful Rep. John Dingell, and led him into tumultuous investigations of scientific and academic conduct. For some 18 months, Stewart was detailed to Dingell's staff.

On the table of organization at NIH, the policing of scientific misconduct was officially the job of the Office of Scientific Integrity (OSI). But that enterprise, despite a few competent hands, eventually collapsed under its own confusion and conflicting signals from NIH management. Out there in the big scientific community, many people with tales of sin to report often confided their information to Feder and Stewart, rather than deal with the officially certified *apparatchiks*.

The letter directing an end to their misconduct vigil tells Feder that, effective May 1, he's reassigned as a medical officer for research in the NIDDKD Review Branch for Extramural Activities. Stewart was reassigned as a research chemist in the Biophysical Chemistry Section, Laboratory of Chemical Physics.

As chief of the Feder-Stewart duo, Feder was advised in the letter, "Should you have any information regarding scientific misconduct, you should turn such allegations over to the Office of Research Integrity [successor to the Office of Scientific Integrity] or to the Office of Inspector General in accordance with applicable NIH and DHHS policy."

Feder and Stewart responded in a letter dated April 12 to NIDDKD Acting Deputy Director Laurence. Apparently referring to a conversation that they had with Laurence, the letter states: "When we asked you upon what you based your recent discovery that the work you had repeatedly approved was outside the mission of NIDDKD, you responded that you knew very little about our work. When asked why, in light of your lack of knowledge, we had not been allowed to demonstrate the relevance of our work, you did not answer."

The Feder-Stewart letter continues: "You say that a number of unnamed officials wanted us fired, and that other unnamed officials wanted us investigated and then fired. You said that instead we were being reassigned."

SGR's telephone call to Laurence for his assessment of these allegations was returned by a spokeswoman, who said all the information the NIDDKD wished to provide was contained in a barebones statement announcing the reassignment of Feder and Stewart.

Nervous Super Collider Boosters Rally in Washington

Jittery about fickle Washington politics, backers of the Superconducting Super Collider (SSC) fielded a contingent of Nobel laureate physicists and assorted colleagues on April 13 to rally backing for their financially ravenous project.

The spectacle of scientific savants taking the Willie Loman route might have shocked scholarly sensibilities of the past. But in the straitened atmosphere of contemporary scientific economics, Nobelists as pitchmen for their own discipline stir little notice.

Thus, trumpeted and shepherded by a Washington public relations firm hired for $5000 for a months's service, the Nobelists and colleagues performed at a press conference at the National Press Club. The event coincided with the annual meeting of the American Physical Society, which may explain assurances, given in response to a question, that the cast's expenses was not being charged to the taxpayers via appropriations for the SSC. The five grand for PR, SGR was advised, was provided by the National Association for the Superconducting Super Collider, a lobbying outfit of SSC industrial contractors.

The Super Collider, Nobelist T.D. Lee, of Columbia University, told the Press Club assemblage, "will restore our cutting edge in basic science and technology." He did not explain how.

Another Nobel laureate, Leon Lederman, the former head of the Fermi lab and past President of the American Association for the Advancement of Science, said the SSC had become enmeshed in irrelevant controversy. The real issue, he explained, is "the flow of young people into science"—which will be abetted, he said, by another chapter of discovery in particle physics. Noting Washington's concerns about money, Lederman said, "It takes enormous courage to invest in the SSC," though he observed that the SSC's annual construction costs amount to a mere 5 percent of federal support for basic research.

An official of an SSC contractor, James Conner, Vice President of Babcock and Wilcox, Inc., said that his firm had awarded 23.6 percent of its subcontracts to small and disadvantaged business firms, thus exceeding the 10 percent quota established for the SSC's prime contractors.

Conner also said that technology developed by his company for the SSC's magnets had inspired a design for countering explosive mines in shallow waters, for which a proposal has been presented to the Navy. Perhaps this is what Conner had in mind when he was quoted in a press release as describing the SSC "as one of the nation's premier defense conversion programs."

Rep. Martin Frost, Democrat, from Waxahachie, Texas, site of the SSC, stated that Japanese officials "at the highest level" had personally assured him that they were considering the possibility of providing financial support for the SSC. Reminded that after four years of such assurances, Japan had not yet provided a yen, Frost said he takes the assurance "at face value." When a questioner asked about internationalizing the cost and management of the SSC, Nobelist Val Fitch, of Princeton University, explained that it was a bit late in the day to be pondering that arrangement, as desirable as it might be.

On the reliability of the SSC's cost estimates, Wolfgang Panofsky, impresario emeritus of the Stanford Linear Accelerator Center, and now Chairman of the Board of Overseers of the SSC Lab, responded that the history of accelerator construction comprises a remarkable tale of uncanny adherence to financial and scheduling forecasts. Stating that the average cost increases in high-energy physics construction stand at 3 percent, Panofsky said that "the record is indescribably good."

It went unmentioned that over the past five years, the estimated cost of the SSC has approximately doubled; nor was reference made to the legendary Isabelle fiasco and its tunnel to nowhere, dug at a cost of several hundred million dollars at the Brookhaven National Laboratory, and finally terminated at Congressional insistence.

Also participating in the meeting with the press were Jerome Friedman, MIT; Norman Ramsey, Harvard; Nicholas Samios, Director of Brookhaven; Roy Schwitters, Director of the SSC Lab; Steven Weinberg, University of Texas, Austin. The events of the day included a meeting with Vice President Gore and members of Congress.

On the surface, it would appear that the SSC is safely on the road to completion, even though the pace of spending has been slowed in deference to budget constraints. The President and Vice President have both expressed affection for the project. In evidence of their endearment, the mammoth accelerator is in the Clinton '94 budget for $640 million, and construction is rapidly proceeding. So far, over $1.5 billion has been spent on the way to a total construction budget estimated at about $8.3 billion.

Nonetheless, suspicions persist that the White House is less interested in particle physics than in the outcome of the special Texas Senate election on May 1 for the seat formerly held by Treasury Secretary Lloyd Bentsen. Now temporarily filled by a Democratic appointee, Bob Krueger, the seat is a bigger-than-ever factor in Clinton's calculations since the Senate's 43 Republicans filibustered his economic stimulus package to a halt. After the election, whatever the outcome, the SSC will decline in political value,

Even one of the staunchest backers of the project, Rep. George Brown (D-Calif.), Chairman of the House Science, Space, and Technology Committee, has privately expressed uncertainty about its political survivability in a Congress loaded with feisty freshmen who want to shake things up.

The best hope for the SSC is to spend to the point where even the doubters would have to concede the fiscal folly of abandoning so much completed work. There's no formula for precisely identifying the point of no return, but it's probably not far off.—DSG

More IN PRINT: Syrian Scientists, Radiation Studies

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Scientists and Human Rights in Syria (65 pp., no charge), by the National Academy of Sciences Committee on Human Rights, says Syria may lead the world in political persecution and abuse of scientists, engineers, and health workers. The report lists 238 in these professions who were imprisoned for political reasons, including 20 who are believed to have died or disappeared while in custody. Some liberalization has occurred since 1991, the Committee concludes in noting the release of hundreds of political prisoners, including scientists. But additional arrests have also occurred, and university faculty members who have been released have not been permitted to resume their academic careers, the report states. The Committee reports that in 1992 the Academy declined a Syrian government invitation to participate in a "science week" in Damascus after the government there refused a request to look into and express human rights concerns. The NAS Committee on Human Rights is chaired by Eliot Stellar, Chairman of the Department of Cell and Developmental Biology, University of Pennsylvania.

Order from: National Academy of Sciences, Committee on Human Rights, 2101 Constitution Ave. NW, Washington, DC 20418; tel. 202/334-3043.

Consortium of Social Science Associations: Annual Report 1992 (24 pp., no charge), from the Washington-based monitor and lobby for the social and behavioral sciences, COSSA, now in its 12th year, reporting on its struggles to expand the sliver of federal research funds available for those disciplines, principally at NSF and NIH, as well as other matters of concern.

Order from: Consortium of Social Science Associations, 1522 K St. NW, Washington, DC 20005; tel. 202/842-3525; fax 202/842-2788.

Beam Line (quarterly, no charge), slick, well-edited magazine published by the Stanford Linear Accelerator Center, contains news of SLAC, plus general articles about particle physics and related matters. The Spring issue (44 pp.), reflecting the economic anxieties of the high-energy tribe, pitches particle physics as a wondrous producer of unexpected high-tech industrial spinoffs that more than pay the whole bill.

Order from: *Beam Line*, Stanford Linear Accelerator Center, PO Box 4349, Stanford, California 94309; tel. 415/926-2585; fax 415/926-4500.

Eighth Annual Report: December 1992 (26 pp., no charge), Committee on Interagency Radiation Research and Policy Coordination (CIRRPC), a government-wide body under the umbrella of the Federal Coordinating Council for Science, Engineering and Technology, part of the White House science-advisory complex. The annual report summarizes a variety of CIRRPC activities and publications. Among the subjects covered: the report last year by an Oak Ridge Associated Universities panel that concluded that the published literature does not support warnings of health hazards from extremely low-frequency electric and magnetic fields. Also from CIRRPC: ***Catalog of Publications: April 1993*** (4 pp., no charge), lists reports, papers, etc., some dating back to 1988.

Order from: Oak Ridge Associated Universities, Publications, 1019 19th St. NW, Suite 700, Washington, DC 20036; tel. 202/653-5505; fax 202/653-5415.

Job Changes & Appointments

Dallas Peck, Director of the US Geological Survey since 1981, says he'll step down and return to research as soon as a sucessor is named.

Frank Press, completing 12 years on June 30 as President of the National Academy of Sciences, will join the Carnegie Institution of Washington in September as a Senior Fellow. His successor at NAS is ***Bruce Alberts***, Professor of Molecular Biology, UC San Francisco, who takes office July 1.

Frederick Bernthal moved up from Deputy Director to Acting Director of the National Science Foundation April 12 upon ***Walter Massey's*** departure for a Vice Presidency at the University of California. ***Mary Clutter***, Assistant Director for Biological Sciences, steps into the Deputy post.

Gerson Sher, NSF Program Coordinator for Eastern Europe, will start a two-year leave in May to serve as Associate Director in the International Science Foundation for the Former Soviet Union.

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IN PRINT: Grad Enrollments, Whistleblowing, Etc.

The publications listed are obtainable as indicated—not from SGR.

Selected Data on Graduate Students and Postdoctorates in Science and Engineering: Fall 1991 (NSF 92-335; 53 pp., no charge), from the National Science Foundation, statistics on full- and part-time enrollments, fields of study, sources of support, racial and ethnic background of students, and the institutions in which they are enrolled. The data are presented in 25 tables, many covering 1983-91. Included is an order form for publications that present additional information on particular topics. Preparation of the report was supervised by J.G. Huckenpohler, NSF Program Analyst.

Order from: NSF, Division of Science Resources Studies, 1800 G St. NW, Washington, DC 20550; tel. 202/634-4787; fax 202/634-4683.

Whistleblower Protection: Agencies' Implementation of the Whistleblower Statutes Has Been Mixed (GAO/GGD-93-66; 15 pp., no charge), by the General Accounting Office (GAO), says the Whistleblower Protection Act of 1989 has had little effect because few federal agencies have written the necessary follow-up regulations or informed their employes of rights under the Act. The report states that two agencies "informed all employes about the whistleblower statutes," 15 others informed "certain groups of employes," while two agencies—with a total of 1.1 million employes—did not inform any employes of their rights under the Act.

The 1989 Act was intended to beef up a 1979 law which, according to the GAO, "had little impact on encouraging federal employees to blow the whistle and did not protect employees from reprisals." The GAO lists all the agencies it surveyed, but in its customary tiptoe fashion, does not identify the miscreants or even those that are in compliance with the law. Rep. William L. Clay (D-Mo.), who requested the report last year when he was a Subcommittee Chairman on the House Committee on Post Office and Civil Service, has since become Chairman of the full Committee.

Order from: USGAO, PO Box 6015, Gaithersburg, Md. 20884-6015; tel. 202/512-6000; fax 301/258-4066.

Catalyst for Change: JUSE and Japan's National Quality System (24 pp.; $12, plus $1 for domestic shipping and handling, $3.50 for overseas), from the Council on Competitiveness, a report on what is described as a key factor in Japanese industrial quality, the Union of Japanese Scientists and Engineers, a non-profit corporation formed in 1946 to promote research and training for manufacturing quality in industry and academe. The report, latest in the Council's Policy Series, says several American organizations have similar goals but operate on a more modest scale.

Order from: Council on Competitiveness, Publications, 900 17th St. NW, Washington, DC 20006; tel. 202/785-3990; fax 202/785-3998.

F.A.S. Public Interest Report (bimonthly, $25 per year), newsletter of the Federation of American Scientists (FAS), still going strong, with 4000 members, 47 years after its founding by Manhattan Project alumni opposed to a nuclear arms race. Though the Federation has branched out to other concerns, it remains a strong voice for restraint in military technology, as in the March/April *Report* (12 pp.), which is devoted to a critical review of the Strategic Defense Initiative.

Also from the FAS: ***Secrecy & Government Bulletin*** (monthly, $20; free to publicly accessible libraries), reports on government classification practices, barriers to obtaining information from federal agencies, etc. The April issue (4 pp.) contains an entertaining Q&A on Washington's rococo secrecy rules between Steven Garfinkel, Director of the Information Security Oversight Office, the little-known federal shop that sets secrecy regulations, and *Bulletin* Editor Steven Aftergood.

And available through FAS: ***Chemical Weapons Convention Bulletin: News Background and Commentary Relevant to Chemical Weapons and Chemical Arms Control*** (quarterly; $25 for US subscribers "and those abroad who are able to pay it"), reports on the Chemical Weapons Convention, which was opened for signatures in January, and the Preparatory Commission, which was chartered to implement the Convention, plus related news, speeches, etc. The *Bulletin* (24 pp. in the March issue) is edited by Matthew Meselson, Harvard, and Julian Perry Robinson, University of Sussex, UK.

Order from: Federation of American Scientists, 307 Massachusetts Ave. NW, Washington, DC 20002; tel. 202/546-3000.

Science, Technology and Innovation Policies—Hungary (160 pp., $31), a review by the Organization for Economic Cooperation and Development (OECD), part of its helping-hand program for the former Soviet bloc, notes that Hungary spent nearly 2 percent of gross domestic product on research and development in the late 1980s—about the same as Britain, nearly double that of Italy; US patents to Hungarian inventors were on a par with awards to those from Spain and Norway.

The glum side is that a wobbly economy has impinged on R&D spending. The OECD study, conducted under the auspices of the National Committee for Technological Development of Hungary, recommends adoption of a national technology strategy and closer relations between research organizations and industry.

The review of science in Hungary is the latest in OECD's long-running series of national-science policy reviews.

Order from: OECD bookstores and sales agents in many major cities around the world. In the US: OECD Publications and Information Center, 2001 L St. NW, Suite 700, Washington, DC 20036-4910; tel. 202/785-6323; fax 202/785-0350.

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